

## Installation Instructions



**⚠ DANGER**

**Hazardous voltage. Will cause death or serious injury.**

Turn off and lock out all power before removing circuit breaker for modification.

Breaker must be completely disconnected and removed before accessory is attached.

### ⚠ SAFETY INSTRUCTIONS

NOTE: This instruction outlines the recommended installation procedure.

EC Frame Types EC4, ED Frame Types ED2, ED2Y, ED4, ED6, HED4, HED6, CED6, ED6 ETI and CED6 ETI.  
EM Frame Types EM6, EMK.

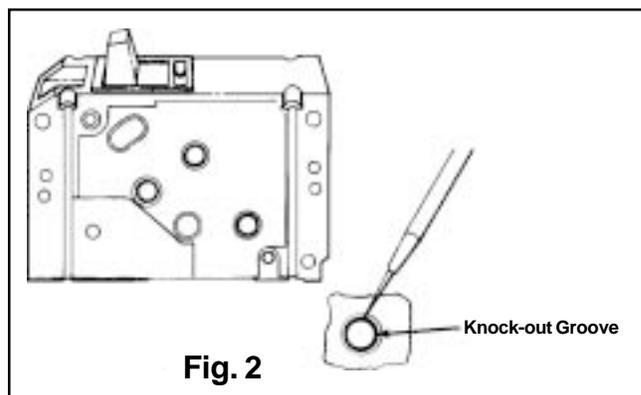
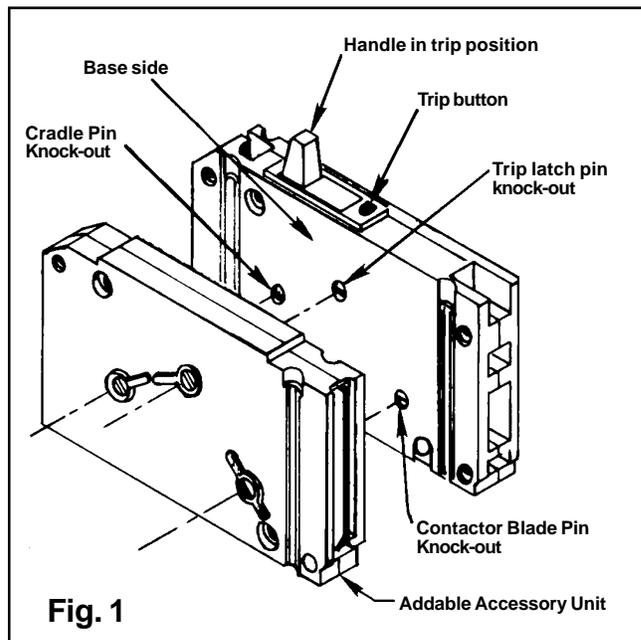
For this publication, the term circuit breaker also includes molded case switches and motor circuit interrupters.

- NOTE:
1. The accessory module may be used on all the ED frame type circuit breakers listed above except with multipole ED circuit breakers which use 3 black actuator. (See Figure 3 for location of actuators.)
  2. Never attempt to mount accessory device while circuit breaker is installed.
  3. Never attempt to add more than one accessory device to the circuit breaker. Combinations must be ordered as a single unit.

### 1. Circuit Breaker Preparation

For 1 pole breaker types EC4, ED2, ED4, ED6, HED4, HED6 and ED2Y, refer to instructions A thru E. For all other types refer to steps A and E.

- A. Turn off and lock out all power before removing circuit breaker for modification. Breaker must be completely disconnected and removed from any electrical equipment before accessory is attached.
- B. Align Accessory to circuit breaker as shown in Fig. 1. Mark only the breaker knock-outs which correspond to the actuator blades protruding from the accessory package.
- C. Place the circuit breaker on a flat surface with the marked knock-outs facing you as shown in Fig. 2.
- D. Using a sharp object such as a knife blade point, place point in groove of knock-out and tap on handle unit groove is pierced.

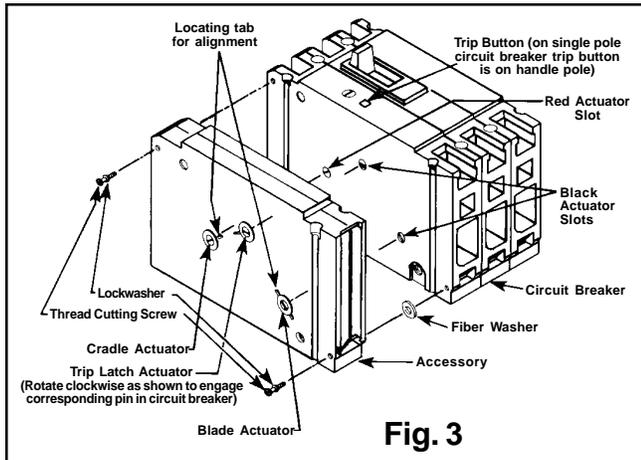


DO NOT use excessive force or the internal mechanism of the circuit breaker may be damaged.

1. Repeat step "D" moving around the groove until the knock-out can be removed.
  2. It is important that the slotted pin is completely exposed and that as plastic has been trimmed and removed until the edge of the knock-out has been cleaned and the metal pin has been exposed, the circuit breaker is ready for mounting the accessory unit.
- E. Before assembling accessory to the breaker be certain that all exposed accessory actuator slots are in line with the locating tabs (See Fig. 3) and the circuit breaker is in the tripped position.



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Position accessory unit against the side of the breaker carefully to determine that all accessory actuator blades are engaged into the pin slots of the circuit breaker.

NOTE: Fibre washer must be placed between the circuit breaker and the accessory as shown in Fig. 3.

Secure accessory to circuit breaker using (2) #6 - 20 X 1 3/8 long thread cutting screws and split lockwashers.

### 2. Testing the Accessory

#### A. Mechanical Testing

##### 1. Shunt Trip and/or Undervoltage accessories:

- "Reset" and turn circuit breaker "On".
- Note: With an undervoltage accessory assembled to the breaker without rated voltage applied to the coil, the breaker will not "Reset" and turn "On". Refer to Electrical Testing Section.
- While observing the slotted actuators in the accessory unit, turn breaker "Off" and "On" several times. The Blade Actuator slot should be close to aligning with the locating tabs when the breaker is "Off", and then move approximately 40° clockwise when the breaker in "On" (Ref. to Fig. 3).
- Place breaker in "On" position and observe the trip latch actuator. The actuator slot should rotate a few degrees counterclockwise as the trip button is depressed. Also, after the breaker has "tripped" the Blade Actuator slot should be close to aligning with their locating tabs (Ref. Fig. 3).

#### 2. Alarm Switch Accessories

- For units with Alarm contacts and either undervoltage or shunt trip, see Section A. 1.
- For Alarm only "Reset" breaker, then turn breaker "On". Trip breaker, then observe Cradle Actuator, the slot should be close to aligning with its locating tab (Ref. Fig. 3).

#### 3. Auxiliary Switch Accessories

- For units with auxiliary contacts and either undervoltage or shunt trip, see Section A. 1.
- Auxiliary contacts only. "Reset" breaker then turn breaker "On". While observing the Blade Actuator, turn the breaker "OFF" and "ON" several times. The slot in the Blade Actuator should be close to aligning with the locating tabs when the breaker is "Off" and then move approximately 40° clockwise when the breaker is "On" (Ref. Fig. 3).

#### B. Electrical Testing

- Alarm Switch: Check continuity of Alarm contacts per accessory label. See Auxiliary and Alarm Switch information for definition of normal position.
- Auxiliary Switch: Check continuity of Type "A" and "B" contacts per accessory label. See Auxiliary and Alarm Switch information for definition of normal position.
- Shunt Trip
  - Reset and turn circuit breaker "On".
  - Connect voltage supply to accessory terminals (1 & 2). When the test voltage reaches 55% or more of the rated coil voltage, the shunt trip should operate to trip the circuit breaker. (Suitable for use in ground fault protection of equipment applications using AC control power).
  - With the circuit breaker in the "Tripped" or "Off" position, check to verify that the coil clearing switch has opened the coil circuit.
- Undervoltage:
  - With the breaker in "Tripped" position, connect voltage supply to accessory terminals (1 & 2). Energize undervoltage coil at 85% to 100% of rated coil voltage. "Reset" and turn breaker "On".
  - Reduce voltage to 35% of rated coil voltage. The undervoltage shall operate to trip the circuit breaker.



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### 3. Accessory Wiring Information:

A. Auxiliary and Alarm Switch  
(Torque the terminal screws to 8 in.lbs.)

1. Accessory terminal number and contact position diagram.

	BREAKER CONDITION		
	TRIP	OFF	ON
AUXILIARY SWITCH			
*2ND AUXILIARY SWITCH			
ALARM SWITCH			
ALARMSWITCH CAT.NO. A02ED62B ONLY			

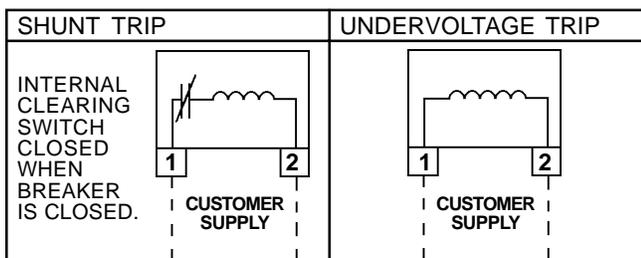
\* Used for devices containing two Auxiliary Switches as follows: All Shunt Trip and Undervoltage Trip cat. no's having an "AA" suffix and Auxiliary Switch cat. no's A02ED62 and A02ED82B.

#### Electrical Data for Auxiliary Switch Kits

Cat. No.	Number Of Switches	Ampere Rating Of Switch			D.C. Voltage	
		A.C. Voltage			125	250
		120	240	480		
A01ED62	1	15	15	—	.5	.25
A02ED62	2	15	15	—	.5	.25
A01ED64	1	15	15	15	.5	.25
A01EDLV	1	24V@ .1 Amp Max.			24V@ .1 Amp Max.	
A02EDLV	2	24V@ .1 Amp Max.			24V@ .1 Amp Max.	

### B. Shunt and Undervoltage Trip Information

1. Connection Diagram and Terminal Number.



#### Electrical Data for Shunt Trip

Coil Voltage	Inrush Current At Rated Voltage (Amperes)	Cat. No.
60 Hertz AC		
12	3.9	S19ED60
24	1.2	S17ED60
48	.8	S18ED60
120	.4	S01ED60
208	.27	S02ED60
240	.17	S03ED60
277	.19	S15ED60
480	.15	S04ED60
600	.08	S06ED60
D.C.		
12	4.3	S16ED60
24	2.2	S07ED60
48	1.2	S09ED60
125	.5	S11ED60
250	.35	S13ED60

#### Electrical Data for Undervoltage Trip

Coil Voltage	Sealed-In Current At Rated Voltage (Amperes)	Cat. No.
60 Hertz AC		
120	.03	U01ED60
208	.018	U02ED60
240	.016	U03ED60
277	.013	U16ED60
480	.008	U06ED60
600*	.008	U08ED60
120	.03	U01EM60
D.C.		
24	.11	U13ED60
48	.06	U14ED60
125	.027	U10ED60
250**	.02	U12ED60
125	.027	U10EM60

\* Kit includes a 30K ohm, 25 watt resistor (Clarostat Cat. No. VP-25-K or equivalent).

\*\* Kit includes a 2.5K ohm, 25 watt resistor (Clarostat Cat. No. VP-25-K or equivalent).

**NOTE:** Resistor to be mounted externally of device & connected by installer.